Transmission Annual Planning Report 2020 Webinar

Webinar agenda

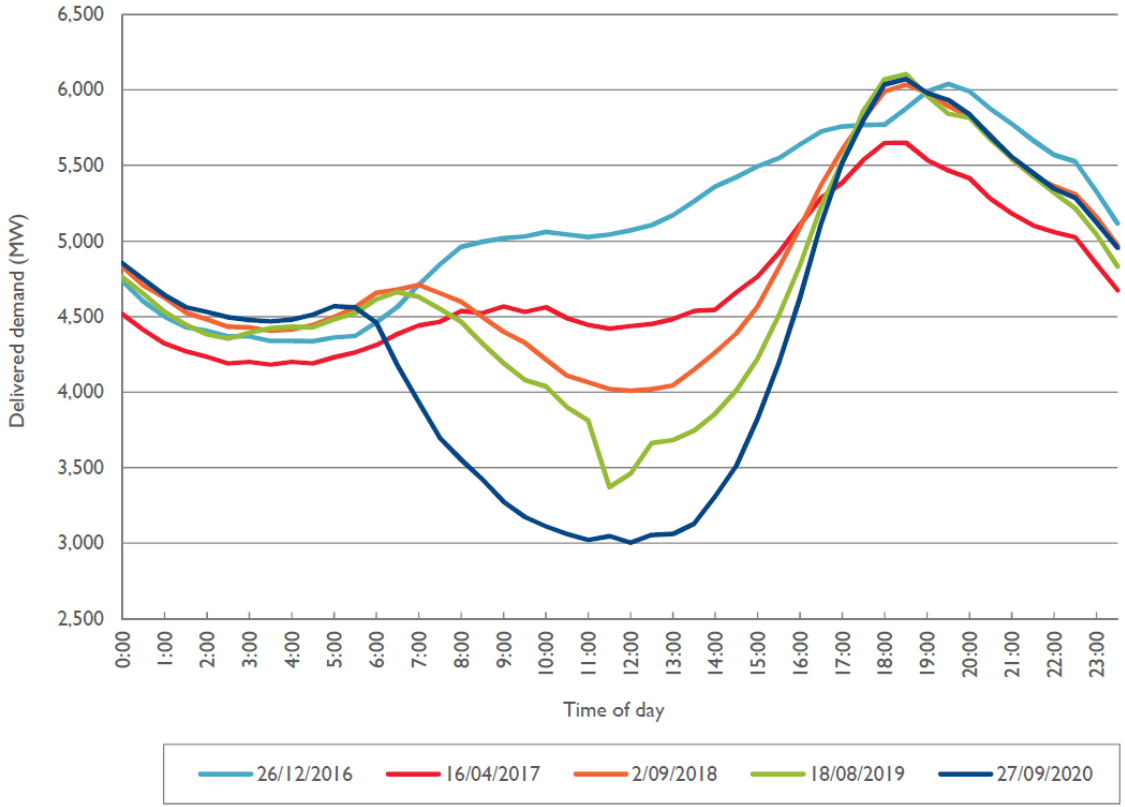
9.30 am	CE welcome and introduction
9.35 am	Energy, demand and generation outlook
9.55 am	Transmission network development
10.15 am	Questions
10.30 am	Close

Chief Executive
Paul Simshauser

TAPR key highlights

Network planning – challenges and highlights in TAPR

Transmission delivered annual minimum demand for the Queensland region



General Manager Asset Strategies and Planning
Jacqui Bridge

Energy, demand and generation outlook

Key focus

Meeting the challenges of a transitioning energy system with much greater levels of variable renewable energy generation

Active customer and stakeholder input to decision-making

Supporting shift to diverse generation connections

Adapting to changes in customer behaviour and economic outlook

Integrated and flexible analysis of future needs

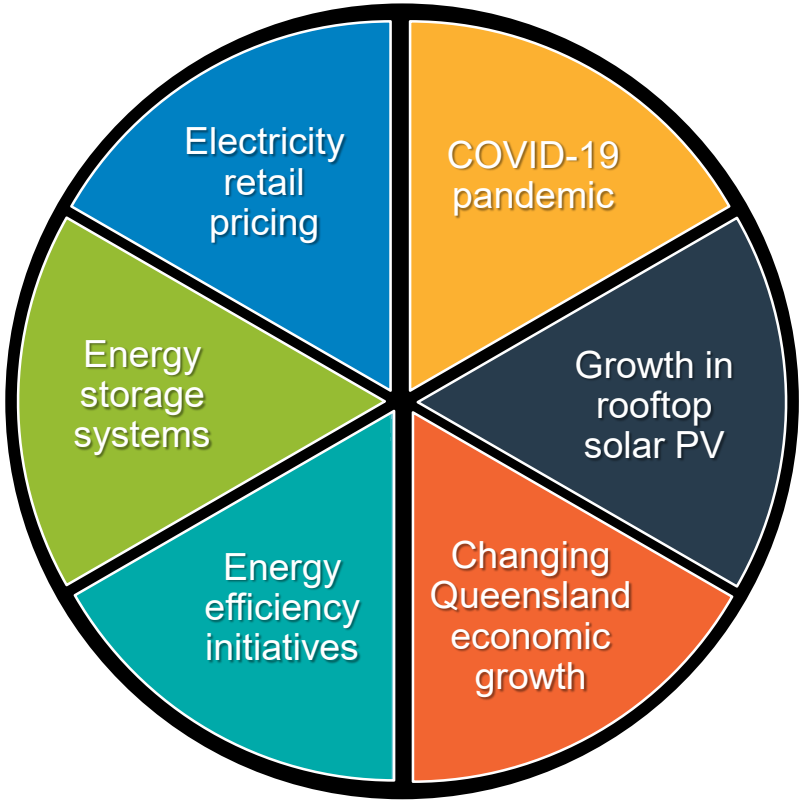
Continuing to deliver safe, cost effective and reliable transmission services

Energy and demand forecasts

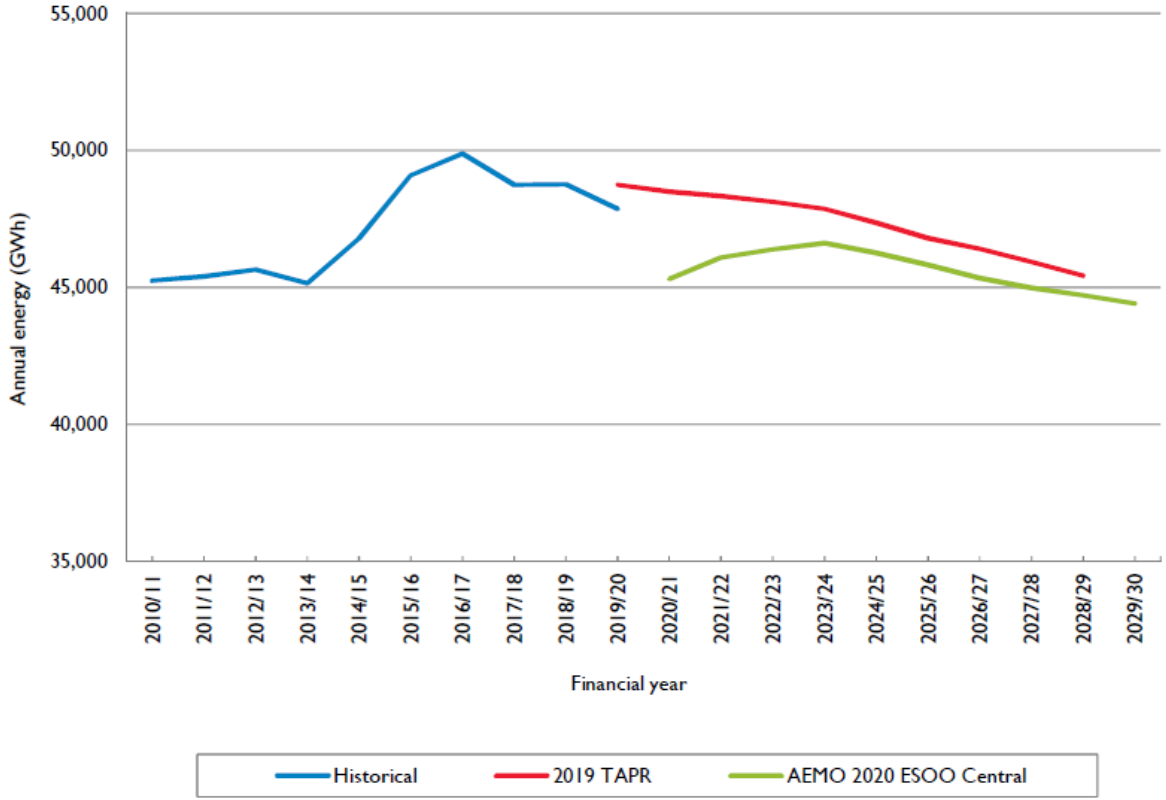
- Powerlink has adopted AEMO's 2020 ESOO forecasts in its planning analysis for the 2020 TAPR
- Bottom-up forecasts are derived through reconciliation of AEMO's forecast with DNSPs at each transmission connection supply point
- Since March 2020 (COVID-19 pandemic, milder weather, etc) has reduced energy consumption by an estimated 2.2%

Impacts captured within Powerlink's 2020 forecasts

Applying AEMO's Central, Slow Change and Step Change scenarios



Comparison of the 2019 TAPR medium economic outlook energy forecast with AEMO's 2020 ESOO Central scenario



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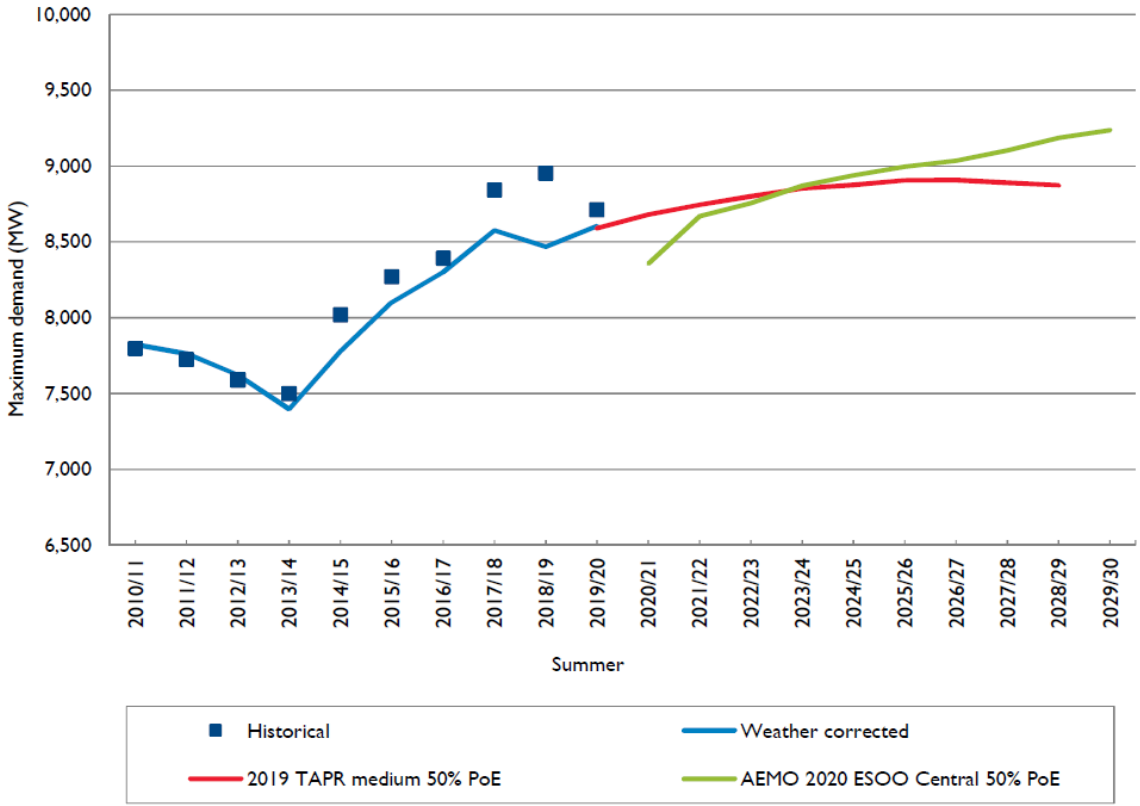
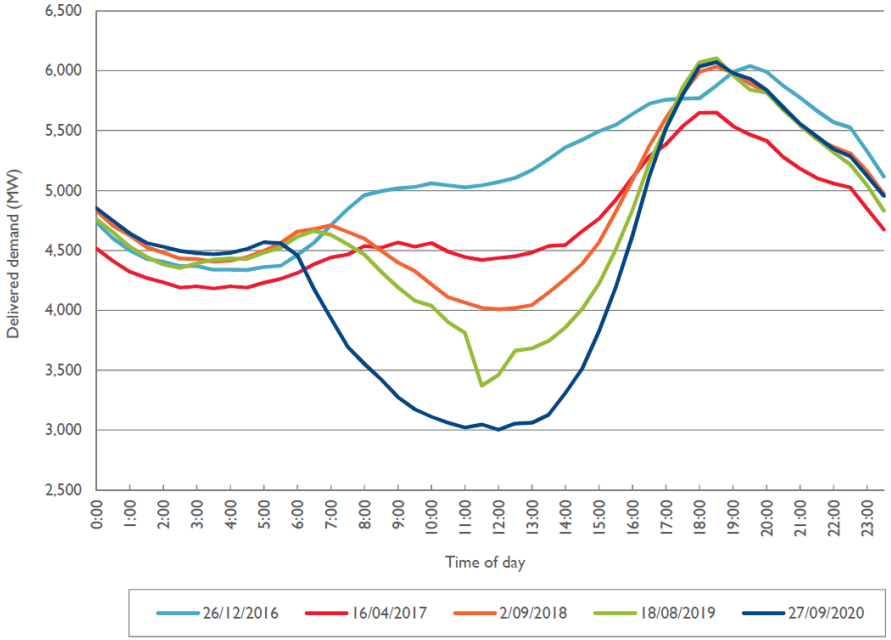
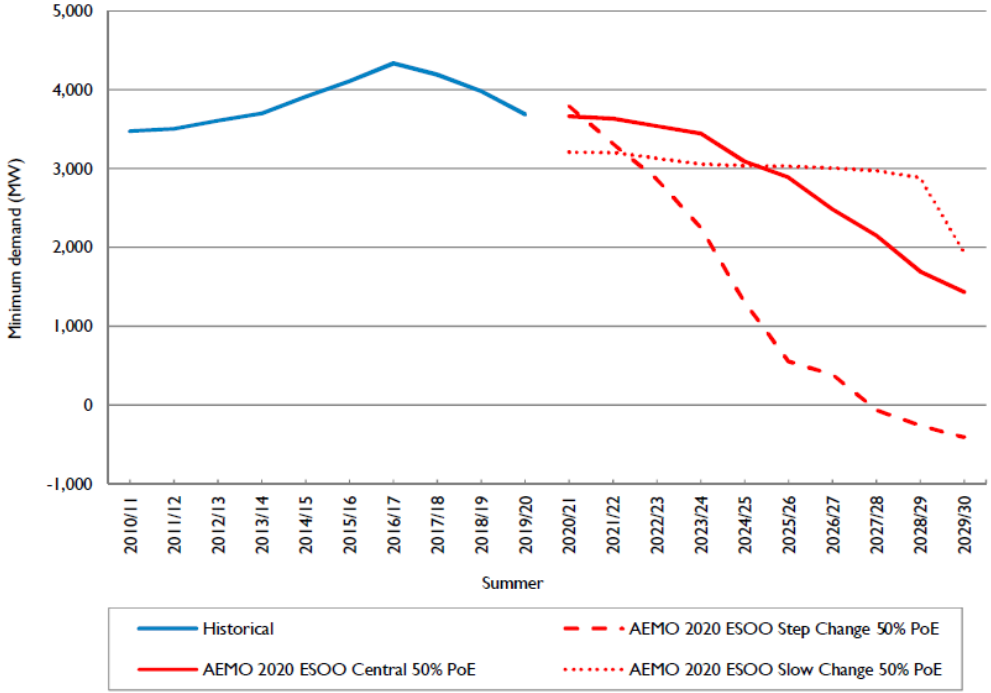


Changing load profiles – minimum demand

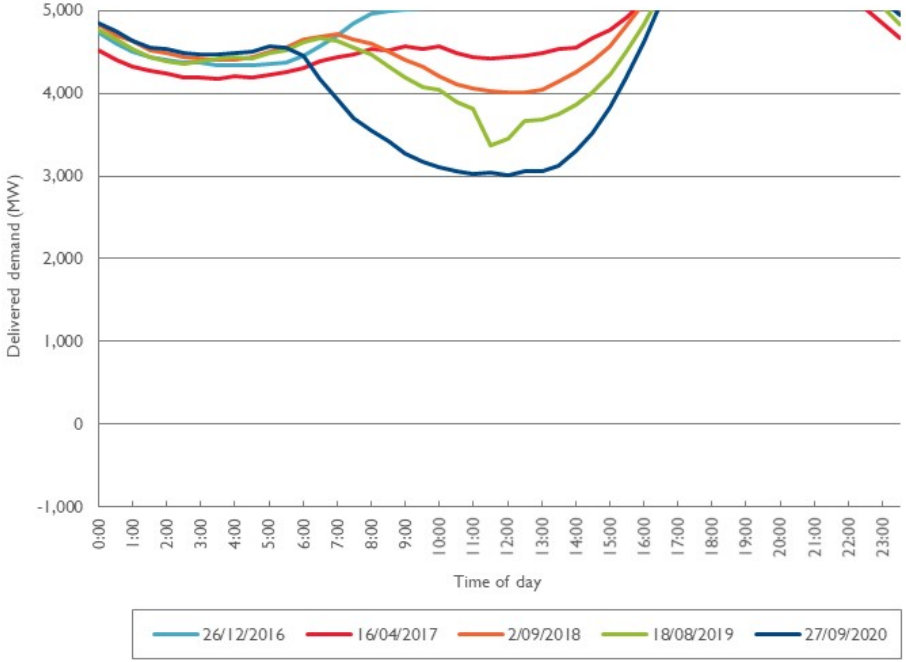
- Queensland delivered demand during the day now lower than night for a portion of the year
- Record minimum delivered demand of 3,003MW on 27 September 2020
- Further challenges as uptake of rooftop PV continues

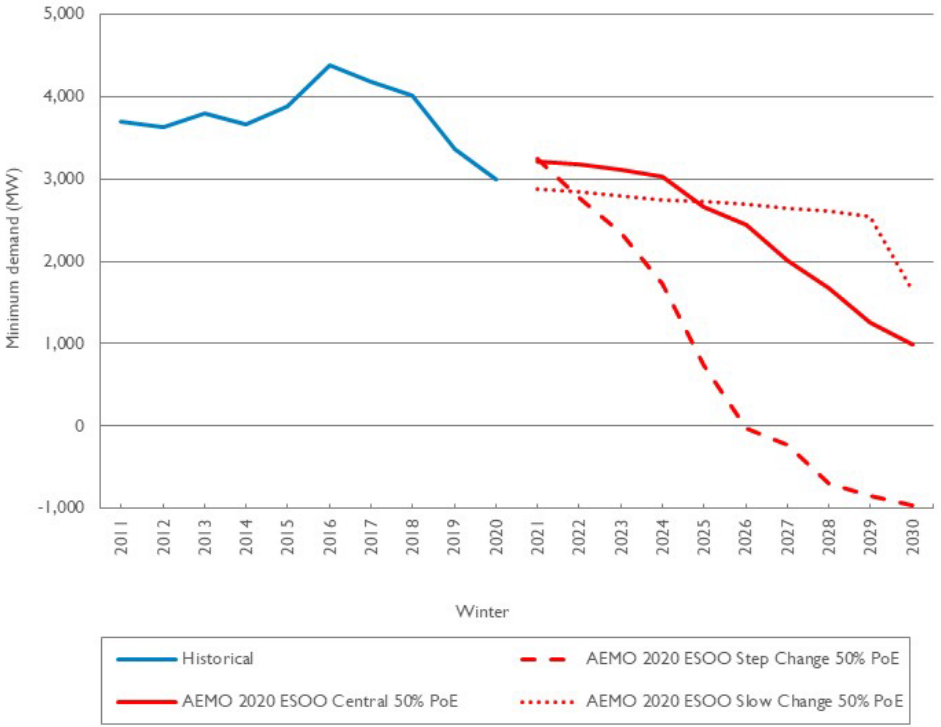
Changing load profiles – minimum demand



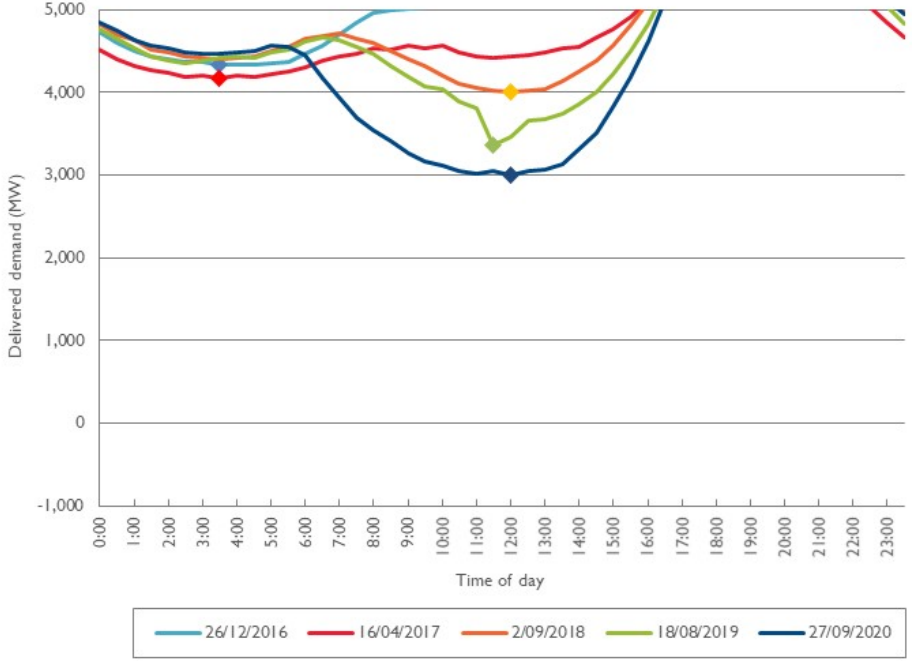


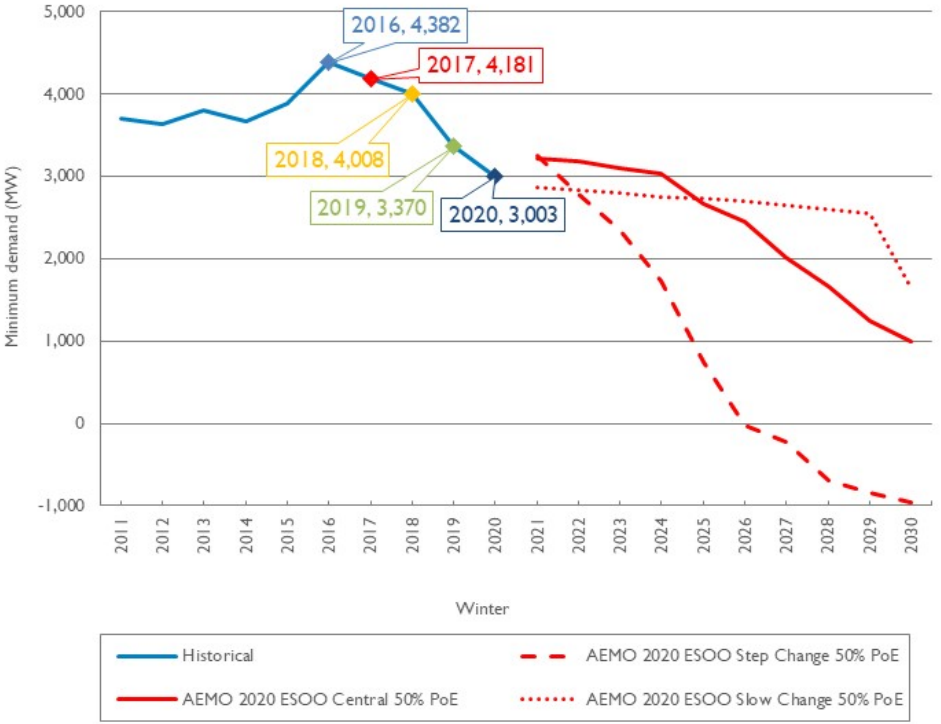
Changing load profiles – minimum demand





Changing load profiles – minimum demand





Changing load profiles

Other challenges arising from the rapidly changing operating environment include

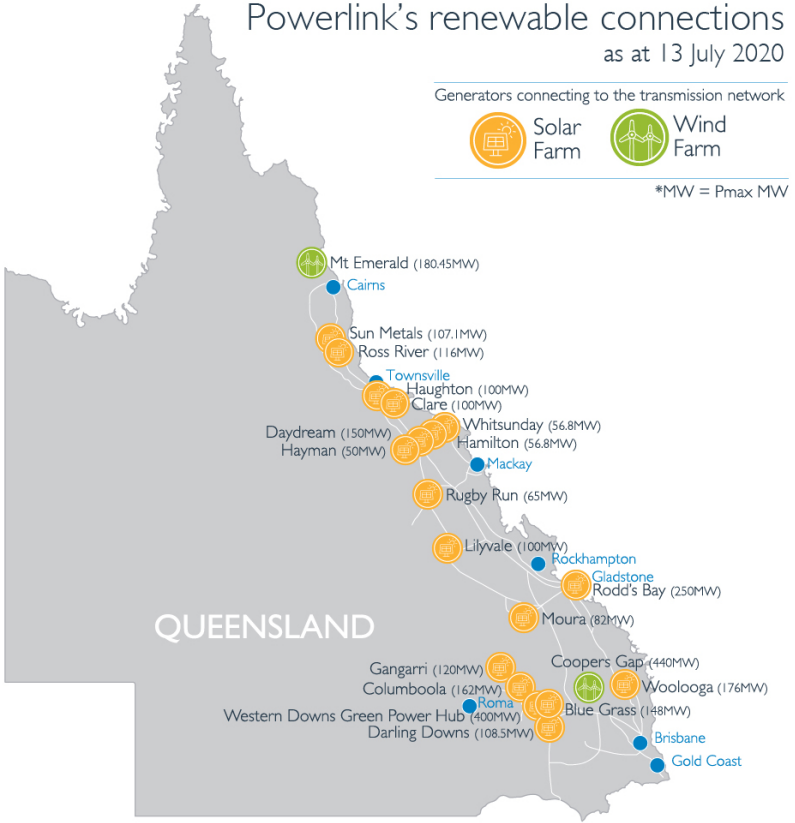
- System strength
- Network congestion as generation patterns change
- Marginal loss factors

Powerlink is responding to these challenges holistically, undertaking long-term network planning to ensure the optimal performance and utilisation of the transmission network in Queensland

2019/20 performance

- Transmission network performed reliably over 2019/20
- Record levels of delivered demands in the Central West, Surat and Bulli zones
- CQ-SQ grid section was highly utilised during 2019/20 due to continued high levels of generation in northern Queensland
- Powerlink is in the process of addressing a system strength shortfall in northern Queensland declared by AEMO in April 2020

Generation outlook – renewable energy



Manager Portfolio Planning and Optimisation
Mahesh Narotam

Transmission Network Development

Future network development

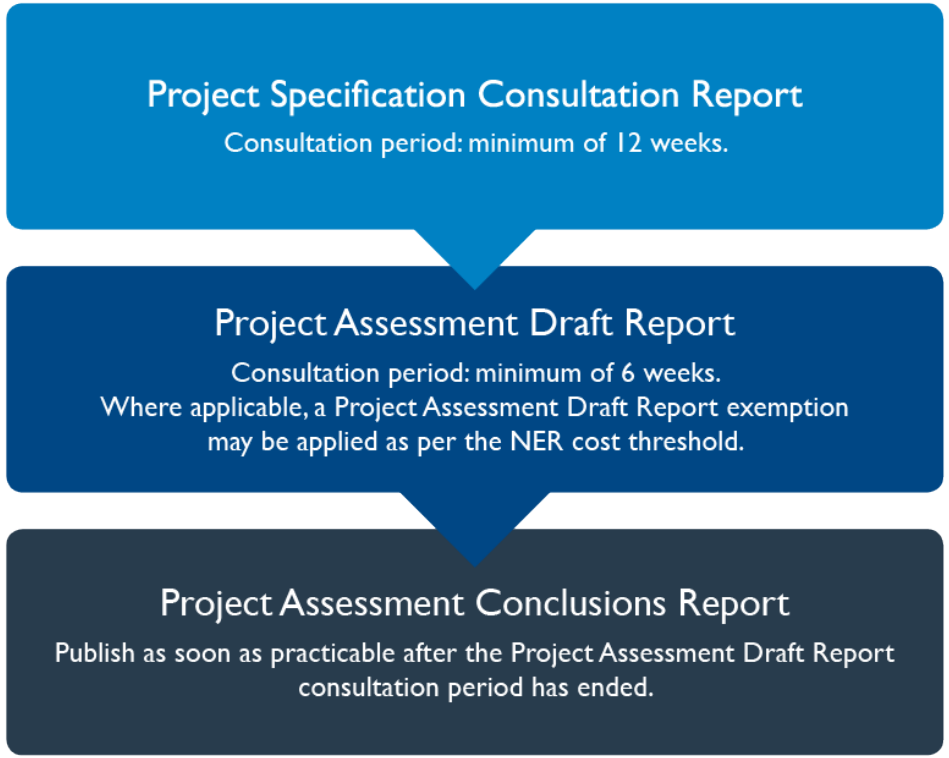
- Overarching strategy is to use an integrated planning approach to ensure positive outcomes for customers as the energy system transforms
- Queensland's transmission network experienced significant growth from the 1960s to the 1980
- Many of these assets now approaching end of service life
- Capex to manage emerging condition risks represents the bulk of Powerlink's program of work over next 10 years
- Continue to actively seek customer input into decision-making about the future transmission network

Approach to asset management

Investment planning

RIT-T process

For potential network projects (non-ISP) over $6 million analysis is publicly assessed through the RIT-T process



Status of public consultations

Expanding NSW-QLD transmission transfer capacity (‘minor upgrade’)

- Publication of the Project Assessment Conclusions Report in December 2019
- Uprating the Liddell to Tamworth transmission lines, installing dynamic reactive support at Tamworth and Dumaresq and shunt capacitors at Tamworth, Dumaresq and Armidale by 2022, prior to the closure of Liddell Power Station
- Powerlink and TransGrid are also investigating the potential benefits of further increases to transmission capacity beyond that provided by the QNI ‘minor upgrade’

Status of public consultations

Powerlink has completed nine RIT-Ts in relation to reinvestments in the transmission network since publication of the 2019 TAPR

Public consultations currently in progress (RIT-T)

- Managing voltage control in Central Queensland – Project Specification Consultation Report published in October 2020
  - Submissions close 8 January 2021

Status of public consultations

Public consultations currently in progress (Expression of Interest)

- Request for system strength services in Queensland to address fault level shortfall at Ross published in April 2020
  - AEMO approved Powerlink's approach for a short-term agreement with CleanCo Queensland utilising its assets in FNQ until the end of December 2020
  - Powerlink has also entered into an agreement with Daydream, Hamilton, Hayman and Whitsunday solar Farms to validate the expected positive benefits of inverter tuning anticipated for commissioning by the end of 2020
  - Powerlink is continuing to work closely with AEMO
  - Looking favourable to meet the August 2021 Shortfall Notice timeframe

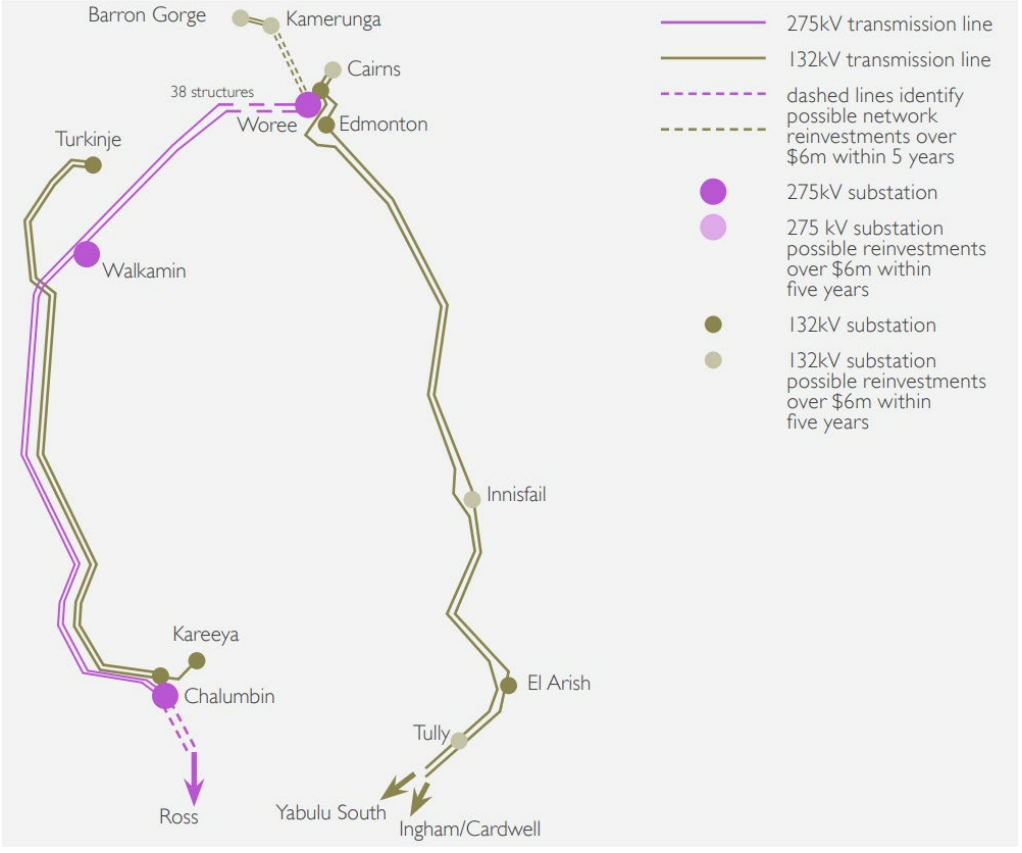
2020 Integrated System Plan (ISP)

- The 2020 ISP published in July identified upgrades in Queensland as part of the optimal development path
    - QNI Medium and Large interconnector upgrades (Powerlink and TransGrid)
    - Central to Southern Queensland Transmission Link
    - Gladstone Grid Reinforcement
- These projects may become ‘actionable’ in a future ISP
- Preparatory activities for these projects will be provided to AEMO by 30 June 2021 to inform the development of the 2022 ISP

Possible future network developments - upcoming RIT-Ts

Maintaining reliability of supply in the Cairns region

- Emerging asset condition risks on the transmission lines between Ross and Chalumbin, Chalumbin and Woree and Kamerunga substations due to structural corrosion
- Opportunity for a targeted approach to optimise any reinvestment
- Proposed investments are targeted line refit between Chalumbin and Woree by 2024, Ross to Chalumbin by 2026 and a line rebuild between Woree and Kamerunga by 2026



Possible future network developments - upcoming RIT-Ts

Maintaining reliability of supply between central and southern Queensland

- Emerging asset condition risks on the transmission lines between Calliope River and Wurdong tee due to above ground corrosion
- The proposed network solution is to rebuild two of the three single circuit transmission lines as a double circuit and life-extend the third

Possible future network developments - upcoming RIT-Ts

- Maintaining reliability of supply in the Tarong and Chinchilla areas
- Maintaining power transfer capability and reliability of supply at Redbank Plains
- Secondary systems replacements across the State

Impacts of COVID-19 pandemic on project delivery

- While there are no concerns regarding the reliability of power supply, there have been impacts on Powerlink's regulated program of work given the restrictions related to COVID-19
- The 2020 TAPR provides the best information currently available with regard to the proposed commissioning dates of network reinvestment projects in progress
- Further updates will be provided in the 2021 TAPR

Recently completed network developments

Commissioned network reinvestments since publication of the 2019 TAPR include

- Garbutt transformers replacement
- Line refit works on the 132kV transmission line between Collinsville North and Proserpine substations
- Dysart Substation replacement
- Rocklea secondary systems replacement

Q&As